National Aeronautics and Space Administration

NASA's Impact in Virginia: A Tech Transfer Perspective

You know that NASA studies our planet, our sun, the solar system, and the Universe.
But did you know about the space program's economic impact here on Earth?

In 2011, NASA invested nearly **$638 million** in the state of Virginia.

Since 2001, NASA's SBIR/STTR Program has invested over **$106 million** in **74 Virginia companies** and more than **$1.2 billion** nationwide.

How NASA's SBIR/STTR Program Benefits Virginia

NASA is committed to moving technologies and innovations into the mainstream of the U.S. economy, and the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) program helps fulfill this goal.

SBIR/STTR stimulates technological innovation by encouraging small, high-tech companies—particularly minority and disadvantaged businesses—to partner with NASA to help meet its research and development needs in key technology areas. At the same time, this program strengthens small companies by enabling them to bring cutting-edge new products into the U.S. economy.

The list to the right highlights Virginia businesses that received SBIR/STTR contracts from NASA since 2006. **(Visit http://sbir.nasa.gov for more information on the SBIR/STTR program.)**

www.nasa.gov

NASA SBIR/STTR Companies in Virginia

AeroSoft, Inc.	Blacksburg
Aerospace Innovations, LLC	Yorktown
Air Traffic Analysis, Inc.	Fairfax
Analytical Services & Materials, Inc.	Hampton
Applied EM, Inc.	Hampton
Aurora Flight Sciences Corporation	Manassas
AVEC, Inc.	Blacksburg
AVID, LLC	Yorktown
Bear Technologies, LLC	Maidens
Black Laboratories, L.L.C.	Newport News
Cellular Materials International, Inc.	Charlottesville
Computational Physics, Inc.	Springfield
Delta Velocity Corporation	Leesburg
GATS, Inc.	Newport News
GeneSiC Semiconductor, Inc.	Dulles
Harmonia Holdings Group, LLC	Blacksburg
MicroXact, Inc.	Blacksburg
Mosaic ATM, Inc.	Leesburg
NAL Research Corporation	Manassas
NanoRacks, LLC	Alexandria
NDE Technologies, Inc.	Charlottesville
Nuvotronics, LLC	Radford
Parabon Computation, Inc.	Reston
Phenom Technologies, Inc.	Williamsburg
Prime Photonics, LC	Blacksburg
Progeny Systems Corporation	Manassas
Pyxisvision, Inc.	Bristow
Tao of Systems Integration, Inc.	Hampton
Tesla Laboratories	Arlington
Tiger Innovations, LLC	Arlington
Turbogizmo, LLC	Centreville
UTRON, Inc.	Manassas
Vanilla Aircraft, LLC	Falls Church
Virginia Diodes, Inc.	Charlottesville
WxAnalyst, Ltd.	Fairfax
Zron Networks, Inc.	Herndon

virginia

How NASA Spinoffs Benefit Virginia

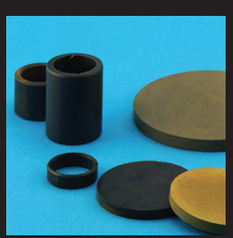
Sensors Collect Critical Aerodynamic Data *(Hampton)*
With multiple NASA contracts, Tao of Systems Integration, Inc. is developing a first-of-its-kind, closed-loop system to detect, measure, and control aerodynamic forces in flight. When complete, engineers will be able to use the system to develop advanced adaptive control systems and flexible wing structures, allowing an aircraft to respond to aerodynamic conditions as they happen, improving flight safety and increasing fuel efficiency. Already, Tao's sensors are providing solutions for a host of research and development applications, such as enhancing wind and underwater turbine operations.

Robotic UAVs Enable Science, Military Missions *(Manassas)*
A Space Act Agreement (SAA) enabled Aurora Flight Sciences Corporation to advance manufacturing techniques used to produce composite airframe components for the Global Hawk unmanned aerial vehicle (UAV), used by the military and NASA for long-duration science missions. Aurora also manufactures unique robotic UAVs that are designed to provide highly portable surveillance for military applications. Headquartered in Virginia, the company employs 350 workers in four states.

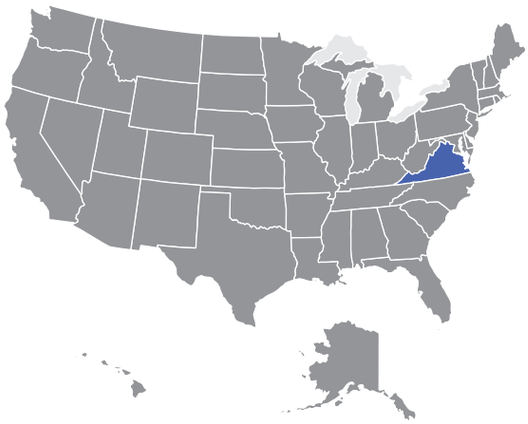
Analysis Tool Improves Airport Efficiency *(Leesburg)*
Airport surface traffic management systems continuously record information, generating massive amounts of data. With NASA funding, Mosaic ATM, Inc. developed an off-line software support tool for analyzing and improving surface operations. The software helps pinpoint data trends and correlations so that airports can refine and improve operational procedures. User-friendly graphics allow for valuable interpretation, such as when flight schedule changes cause inefficiencies. Customers include air traffic specialists, airline managers, and airport authorities.

Technology Permits Research, Security Imaging *(Charlottesville)*
Virginia Diodes, Inc. has found commercial success with its high-frequency integrated diodes, developed under NASA contracts. The diodes enable engineers to create and test products in the terahertz range, particularly useful for chemical spectroscopy and remote sensing of specific molecules. In addition to NASA research needs, applications for terahertz technology include security imaging systems to detect concealed items and hazardous chemical and biological agent detectors. The company has more than 200 customers in over two dozen countries.

Space Software Maximizes Manufacturability on Earth *(Newport News)*
Software that enabled NASA designers to optimize the use of composite materials to reduce the weight of high-speed aircraft is helping the private sector maximize manufacturability in numerous industries. The first-ever licensee of NASA-developed software, Collier Research Corporation enhanced the tool, and it has been used by more than 300 companies to design next-generation cargo containers, airframes, rocket engines, ship hulls, and train bodies. The technology is being spun back into NASA to help engineers analyze designs for new space vehicles.



Versatile Resins Withstand High Temperatures *(Hampton)*
Designed to withstand the high temperatures of space, industry uses abound for RP-46, a polyimide resin that is extremely lightweight, chemical- and moisture-resistant, strong, and flexible. Unitech, LLC commercialized the technology with the help of a NASA contract that demonstrated RP-46 could withstand temperatures up to 2,300°F. Extremely versatile, RP-46 can be used as a molding, adhesive, coating, composite matrix resin, foam, or film. Another Unitech coating, RP-50, has applications in high-temperature electrical insulation and flexible circuitry.



NASA actively seeks partnerships with U.S. companies that can license NASA innovations and create "spinoffs" in areas such as health and medicine, consumer goods, transportation, renewable energy, and manufacturing. When businesses leverage NASA technologies to develop new products, it not only benefits the regional economy, but significantly strengthens the nation's competitiveness in the global marketplace.

NASA's centers across the country—including Langley Research Center in Virginia—have helped 174 Virginia companies develop revolutionary spinoff technologies.

Learn more about how NASA innovations benefit the public in *Spinoff*, an annual publication that highlights NASA's most significant technology transfer successes.
(Available at: http://www.sti.nasa.gov/tto)

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